RESIDENTIAL HEAT LOSS AND HEAT GAIN CERTIFICATION
FORM FOR **HOT WATER HEATING** AND DUCTED AIR CONDITIONING (PER ZONE)

1. Custom House Address or Masterfile house type:_____

   Name of Subdivision:_____ Total Floor Area:_____ S.F.

   Building Permit #_____ Q or R #_____ Zone #_____

2. HVAC Contractor:_____ License #_____

   Address:_____ City:_____ State:_____ Zip:_____

   Telephone:_____ Signature:_____

3. **Winter Design Conditions:*** note 2 Outside:_____ °F Inside:_____ °F

   A. Total calculated heat loss = _____Btuh *note 1

   B. Heat loss per S.F. floor area = _____Btuh ÷ _____S.F. = _____Btuh/S.F.

4. **Summer Design Conditions:*** note 3 Outside:_____ °FDB _____°FWB Inside:_____ °FDB

   A. Total calculated heat gain = _____Btuh* note 1

   B. (Structure) Total sensible gain = _____Btuh* note 1

   C. Heat gain per S.F. floor area = _____Btuh ÷ _____S.F. = _____Btuh/S.F.

   D. Cooling factor = cfm capacity of equipment in cooling mode = _____
   total sensible heat gain of the house

5. **Equipment Data:**

A. Heating (Boiler): Manufacturer

Model No._____

Input:_____ Btuh

Output:_____ Btuh

Type Fuel:_____

System Operating Temperature:_____ °F

Convector Element_____ Btuh/ft

Convector Pipe Size_____

Type and Size Oil Tank (to be installed per NFPA 30)

☐ Underground ☐ Above ground; _____Gal.

B. Cooling: Manufacturer

Model No.:_____

Total Capacity @ Evaporator:_____ Btuh

Sensible Capacity (equipment):_____Btuh

Fan CFM:_____

C. Combustion Air Information* note 5

Duct(s) Size From Outdoors:_____

Ducted to Unit Return ☐ Yes ☐ No

High/Low Grill Provided ☐ Yes ☐ No

Water Heat Btuh:_____

***NOTES:**

1. All loads are to be calculated using ACCA's Manual 'J', ASHRAE Handbook of Fundamentals, or other recognized methods.
2. Minimum winter design conditions: Outside 10°F; Inside 72°F (Wind not exceeding 15 mph); 4501 Annual Heating Degree Days.
3. Minimum summer design conditions: Outside 92°FDB; 77°FWB; Inside 78°FDB
4. All added ventilation air and unfinished areas are to be included in the load calculations.
5. Combustion air for all fuel fired equipment shall be provided by the combined use of indoor and outdoor air as required for unusually tight construction per Section 707 of the 1996 *International Mechanical Code*, Sections 2003 and 2004 of the 1995 *CABO One and Two Family Dwelling Code* or other approved methods.
6. The County reserves the right, per Section 107.7, Volume 1, of the *Virginia Uniform Statewide Building Code*, to request a full HVAC heat loss, heat gain, and energy envelope calculations and plans where deemed necessary.

CFM GUIDE FOR DUCT SIZING

ROUND DUCT		OUTLET SIZE WALL OR CEILING		OUTLET SIZE FLOOR	
4″	40 CFM	8X4	80 CFM	2X10	85 CFM
5″	65 CFM	10X4	80 CFM	2X12	100 CFM
6″	120 CFM	12X4	100 CFM	2X14	125 CFM
7″	165 CFM	14X4	125 CFM	4X10	150 CFM
8″	240 CFM	8X6	100 CFM	4X12	175 CFM
9″	320 CFM	10X6	125 CFM	4X14	225 CFM
10″	420 CFM	12X6	175 CFM		
12″	675 CFM	14X6	200 CFM		
14″	1000 CFM				
16″	1450 CFM				

RETURN GRILLE SIZES

10X10	250 CFM	12X10	350 CFM	12X12	400 CFM
14X14	600 CFM	16X16	750 CFM	18X18	900 CFM
20X20	1100 CFM	24X20	1400 CFM	24X24	1600 CFM

6. **Air Distribution:*** note 1, 2

Room	Area S.F.	Linear Ft. Element Provided *note 3	Heat Loss Btu/h	CFM Cooling	Quantity and Outlet Size	Quantity and Feeder Duct Size	Sensible Heat Gain Btu/h	Return Air Duct	Return Air Grille
Basement									
Rec Room									
Foyer									
Kitchen									
Fam. Rm.									
Liv. Rm.									
Din. Rm.									
Den									
Bdrm. 1									
Bdrm. 2									
Bdrm. 3									
Bdrm. 4									
Hall 1									
Hall 2									
Walk-in Closet									
Bath 1									
Bath 2									
Bath 3									
TOTAL									

***NOTES:**

1. All ductwork is to be designed and installed per the *Virginia Uniform Statewide Building Code*.
2. Separate certification and air distribution forms are required for each zone in multiple zone houses.
3. If radiators are used, provide the BTU/square ft and size (in square ft) of each radiator along with the supporting Manufacturers data.